

# 2015 Annual Performance Report

## City of Jacksonville, Land Treatment Facility and Collection System



### General Information

Facility/System Name: Jacksonville Land Treatment Facility

Responsible Entity: City of Jacksonville  
P.O. Box 128  
Jacksonville, NC 28541-0128

Person in Charge/Contact: William E. Brown, Chief Operator  
Peter Deaver, Utility Services Superintendent

Applicable Permits: Spray Permit No. WQ0009267  
Collection System Permit No. WQCS00268

The City of Jacksonville's collection system is composed of over 300 miles of sanitary sewer lines and 45 wastewater pumping stations. Twenty of these pumping stations have on-site generators to provide power in the event of power failures and the other 25 pumping stations have connections, which allowed them to be powered by portable generators during power outages.

The City's Utilities Maintenance Division's staff consists of 24 employees and is responsible for maintenance, repair and the proper functioning of the sewage collection system and the maintenance and efficient operation of the wastewater pumping stations. This Division provides routine inspections of the City's manholes and is responsible for jetting sewer lines to clear blockages. This staff also provides preventive maintenance to all the pumping stations and generators to insure optimum operation. The Utilities Maintenance Division is also staffed by a Pretreatment Facilities Inspector and an I&I Analyst.

The Jacksonville Land Treatment Site (LTS) is responsible for the treatment and land application of the City's wastewater. Wastewater is transported 8 miles from Jacksonville to the LTS by a 36-inch diameter force main. The wastewater is treated with hydrogen peroxide for the removal of odors before flowing into the headwork facility. At the headwork facility, the influent (raw wastewater) passes through a Huber Step Screen where material greater than 1/8 inch in size is removed. The wastewater then flows into an aerated grit and grease removal system where inorganic material and floatables are removed. Wastewater then flows into a series of aerated lagoons where biological treatment of the waste occurs. Secondary treated wastewater then flows into storage lagoons. The storage lagoons have a capacity of 690 million gallons and provide storage of treated wastewater during periods of inclement weather, when spray irrigation of wastewater is not feasible. The stored treated wastewater is used to irrigate 2,300 acres of pine forest on the LTS property totaling approximately 7,400 acres. Before irrigation, this treated wastewater is chlorinated to insure that no harmful bacteria are sprayed onto the forest. There are three classifications of soil type within the irrigation fields: Well-drained, Moderately well-drained, and Seasonally Suitable. The spray irrigation fields are divided into 28 blocks and the annual hydraulic loading for each block within the irrigation field is a permitted maximum ranging from 49.0 inches to 62.6 inches, depending on the relative percentage of each soil type within the block. As the pines mature and their ability to store nutrients decreases, the mature trees will be harvested and used for pulp wood. Young seedlings will be planted to repeat the cycle. The system is presently designed to treat 9.0 million gallons of wastewater daily and spray irrigates 2,331 acres of generally loblolly pine trees.

The Land Treatment Facility is staffed by the Chief Operator, seven wastewater plant operators, two Plants Maintenance Mechanics, two Plants Maintenance Workers, a Crew Leader and three Equipment Operators. The Supervising Chemist, assisted by a Chemist I and a Laboratory Technician, is responsible for the certification of the water and wastewater laboratory and performs all the required analyses for both the wastewater and water sections.

## **Facility Performance**

The City of Jacksonville's Land Treatment Facility treated 2,101 million gallons of wastewater during the 2015 calendar year, at an average daily flow of 5.758 million gallons. . Extended periods of inclement weather during the fall of 2014 and winter of 2015 resulted in the City being out of compliance with the permitted freeboard limit of 2.0 feet from February 26- March 4 of 2015. To reduce lagoon levels, City staff followed the guidelines of the Emergency Action Plan required by its permit, and conducted emergency spraying in combination with daily surface water monitoring from February 25 – March 24, 2015.. There were no other violations of monitoring and reporting requirements during the 2015 calendar year.

## **Collection System Performance**

There was one (1) reported overflow from the collection system during the 2015 calendar year greater than 1,000 gallons in volume. Below is a detailed summary of the overflow that exceeded 1,000 gallons.

Per NCDWQ guidance, the area where the City experienced an overflow was reported. The incident location was as follows;

- Manhole #4567 surcharged during a heavy rainfall event causing an overflow directly into a storm drain culvert with an estimated amount of 3,000 gallons of untreated wastewater that was released, site was remediated per NCDWQ guidance, sampling was required.

This overflow was thoroughly investigated and the cause was found to be surcharged gravity sewer lines combined with multiple pump stations within close proximity double pumping at the same time as well as heavy tuberculation of ductile iron pipe in two (2) different locations downstream of the manhole. The City maintained constant contact with NCDWQ after the event to ensure full compliance with Environmental Laws and Regulations. The City continues to rehabilitate the wastewater infrastructure to prevent further overflows.

## **Summary**

The City of Jacksonville's Land Treatment Facility and collection system performed very well during the calendar year 2015. The rainfall for 2015 was 69.01 inches. The City has replaced 2766 linear feet (LF) of 12-inch sewer lines during 2015.. New sewer projects totaling 1056 linear feet (LF) of 8-inch pipe were added during 2015.

In addition to replacing deteriorated sewer lines, the City has a program that replaces pumps in pumping stations that are over 20 years old. The City also has a program to install cured in place lining on certain infrastructure that is less invasive and maintains flow of wastewater during rehabilitation. Rain stopper manhole inserts continue to be place in manhole openings whenever possible. The City experiences many blockages in the collection system due to oil and grease entering the system. There is also a provision in the City's Sewer Use Ordinance that requires individual restaurants to clean their grease interceptors at least every 30 days. There are 229 restaurants that are required to pump their grease traps every 30 days and are inspected at least twice a year to insure compliance.